



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2014-0772; Directorate Identifier 2014-NM-090-AD]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to supersede Airworthiness Directive (AD) 2011-08-51, which applies to certain The Boeing Company Model 737-300, -400, and -500 series airplanes. AD 2011-08-51 currently requires repetitive inspections of the lap joint at certain stringers along the entire length from certain body stations. Since we issued AD 2011-08-51, an evaluation by the design approval holder (DAH) has determined that the lower fastener holes in the lower skin of the fuselage lap splice are subject to widespread fatigue damage (WFD), and as a result the DAH specified revised compliance times, an expanded inspection area, and additional inspections for cracks and open pockets, and corrective actions if necessary. Additionally, this evaluation has also determined that the repetitive inspection interval can be increased for lap splices with certain new fay scratches. This proposed AD would expand the inspection area, require additional inspections for cracks and open pockets, and corrective actions if necessary, and revise the compliance times. We are proposing this AD to detect and correct fatigue cracking of the lower fastener holes in the lower skin of the fuselage lap splice, which could result in reduced structural integrity of the airplane.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0772; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6447; fax: 425-917-6590; email: wayne.lockett@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2014-0772; Directorate Identifier 2014-NM-090-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

Structural fatigue damage is progressive. It begins as minute cracks, and those cracks grow under the action of repeated stresses. This can happen because of normal operational conditions and design attributes, or because of isolated situations or incidents such as material defects, poor fabrication quality, or corrosion pits, dings, or scratches. Fatigue damage can occur locally, in small areas or structural design details, or globally. Global fatigue damage is general degradation of large areas of structure with similar structural details and stress levels. Multiple-site damage is global damage that occurs in a

large structural element such as a single rivet line of a lap splice joining two large skin panels. Global damage can also occur in multiple elements such as adjacent frames or stringers. Multiple-site-damage and multiple-element-damage cracks are typically too small initially to be reliably detected with normal inspection methods. Without intervention, these cracks will grow, and eventually compromise the structural integrity of the airplane, in a condition known as widespread fatigue damage (WFD). As an airplane ages, WFD will likely occur, and will certainly occur if the airplane is operated long enough without any intervention.

The FAA's WFD final rule (75 FR 69746, November 15, 2010) became effective on January 14, 2011. The WFD rule requires certain actions to prevent structural failure due to WFD throughout the operational life of certain existing transport category airplanes and all of these airplanes that will be certificated in the future. For existing and future airplanes subject to the WFD rule, the rule requires that DAHs establish a limit of validity (LOV) of the engineering data that support the structural maintenance program. Operators affected by the WFD rule may not fly an airplane beyond its LOV, unless an extended LOV is approved.

The WFD rule (75 FR 69746, November 15, 2010) does not require identifying and developing maintenance actions if the DAHs can show that such actions are not necessary to prevent WFD before the airplane reaches the LOV. Many LOVs, however, do depend on accomplishment of future maintenance actions. As stated in the WFD rule, any maintenance actions necessary to reach the LOV will be mandated by airworthiness directives through separate rulemaking actions.

In the context of WFD, this action is necessary to enable DAHs to propose LOVs that allow operators the longest operational lives for their airplanes, and still ensure that WFD will not occur. This approach allows for an implementation strategy that provides flexibility to DAHs in determining the timing of service information development (with

FAA approval), while providing operators with certainty regarding the LOV applicable to their airplanes.

On May 6, 2011, we issued AD 2011-08-51, Amendment 39-16701 (76 FR 28632, May 18, 2011), for certain The Boeing Company Model 737-300, -400, and -500 series airplanes. AD 2011-08-51 requires repetitive external eddy current inspections of the lap joints at stringers S-4R and S-4L, from body station (BS) 360 to BS 908. If a crack indication is found, AD 2011-08-51 requires either confirming the crack by doing internal eddy current inspections, or repairing the crack. As an alternative to the external eddy current inspections, AD 2011-08-51 provides for internal eddy current and detailed inspections for cracks in the lower skin at the lower row of fasteners at stringers S-4L and S-4R. AD 2011-08-51 resulted from a report indicating that a Model 737-300 series airplane experienced a rapid decompression when the lap joint at stringer S-4L between BS 664 and BS 727 cracked and opened up due to cracking in the lower skin at the lower row of fasteners. We issued AD 2011-08-51 to detect and correct such cracking, which could result in an uncontrolled decompression of the airplane.

Actions Since AD 2011-08-51, Amendment 39-16701 (76 FR 28632, May 18, 2011), Was Issued

Since we issued AD 2011-08-51, Amendment 39-16701 (76 FR 28632, May 18, 2011), an evaluation by the DAH has determined that the lower fastener holes in the lower skin of the fuselage lap splice are subject to WFD, and as a result the DAH specified revised compliance times, an expanded inspection area, and additional inspections for cracks and open pockets, and corrective actions if necessary. Additionally, this evaluation has also determined that the repetitive inspection interval can be increased for lap splices with certain new fay scratches.

Relevant Service Information

We reviewed Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014. For information on the procedures and compliance times, see this service information at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0772.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of these same type designs.

Proposed AD Requirements

Although this proposed AD does not explicitly restate the requirements of AD 2011-08-51, Amendment 39-16701 (76 FR 28632, May 18, 2011), this proposed AD would retain certain requirements of AD 2011-08-51. Those requirements are referenced in the service information identified previously, which, in turn, are referenced in paragraphs (g) and (l) of this proposed AD. This proposed AD would require accomplishing the actions specified in the service information described previously, except as discussed under "Differences Between the Proposed AD and the Service Information."

Differences Between this Proposed AD and the Service Information

Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014, specifies to contact the manufacturer for instructions on how to inspect and repair certain conditions, but this proposed AD would require repairing those conditions in one of the following ways:

- In accordance with a method that we approve; or
- Using data that meet the certification basis of the airplane, and that have been approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) whom we have authorized to make those findings.

Interim Action

We consider this proposed AD interim action. An investigation is ongoing and no terminating action has been developed. Once terminating action is developed, approved, and available, we might consider additional rulemaking.

Costs of Compliance

We estimate that this proposed AD affects 130 airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Repetitive inspections [actions retained from AD 2011-08-51, Amendment 39-16701 (76 FR 28632, May 18, 2011)]	6 or 4,270 work-hours (depending on inspection method) x \$85 per work-hour = \$510 or \$362,950 per inspection cycle	None	\$510 or \$362,950 per inspection cycle	\$66,300 or \$47,183,500 per inspection cycle
Repetitive inspections [new proposed action]	4 or 550 work-hours (depending on inspection method) X \$85 per hour = \$340 or 46,750 per inspection cycle	None	\$340 or 46,750 per inspection cycle	\$44,200 or \$6,077,500 per inspection cycle
One-time inspections [new proposed action]	5,370 work-hours X \$85 per hour = \$456,450	None	\$456,450	\$59,338,500

We have received no definitive data that would enable us to provide a cost estimates for the on-condition actions specified in this proposed AD.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),

- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Amend § 39.13 by removing Airworthiness Directive (AD) 2011-08-51, Amendment 39-16701 (76 FR 28632, May 18, 2011), and adding the following new AD:

The Boeing Company: Docket No. FAA-2014-0772; Directorate Identifier 2014-NM-090-AD.

(a) Comments Due Date

The FAA must receive comments on this AD action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2011-08-51, Amendment 39-16701 (76 FR 28632, May 18, 2011).

(c) Applicability

This AD applies to The Boeing Company Model 737-300, -400, and -500 series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014.

(d) Subject

Air Transport Association (ATA) of America Code 53: Fuselage.

(e) Unsafe Condition

This AD was prompted by an evaluation by the design approval holder (DAH) that has determined that the lower fastener holes in the lower skin of the fuselage lap splice are subject to widespread fatigue damage (WFD). We are issuing this AD to detect and correct fatigue cracking of the lower fastener holes in the lower skin of the fuselage lap splice, which could result in reduced structural integrity of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Repetitive Inspections for Crack Indications at Stringers S-4R and S-4L, Body Station (BS) 360 to BS 908

At the applicable time specified in Table 1 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014: Do an external eddy current inspection, or internal eddy current and detailed inspections, for crack indications at stringers S-4R and S-4L, from body station (BS) 360 to BS 908, except as provided by paragraph (h) of this AD, in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014. Repeat the inspection(s) thereafter at the applicable intervals specified in Table 1 or Table 2, as applicable, of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014. Either inspection option may be used at any repetitive inspection cycle.

(h) One-Time Inspections for Cracks at Stringers S-4L and S-4R, BS 360 to BS 908

At the applicable time specified in Table 3 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014, except as required by paragraph (m) of this AD: Do one-time internal detailed and eddy current inspections for cracks at stringers S-4R and S-4L, from BS 360 to BS 908, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014. Accomplishment of the inspections required by this paragraph does not terminate the repetitive inspections required by paragraph (g) of this AD.

(i) One-Time Inspections for Cracks at Stringer S-4R, BS 908 to BS 1016

For airplanes identified as Group 2, 3, 5, and 7 in Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014: At the applicable time specified in Table 4 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014, except as required by paragraph (m) of this AD, do one-time internal detailed and eddy current inspections for cracks at stringer S-4R, from BS 908 to BS 1016, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014.

(j) Repetitive Inspections for Cracks at Stringer S-4R, BS 908 to BS 1016

For airplanes identified as Group 2, 3, 5, and 7 in Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014: At the applicable time specified in Table 5 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014, except as required by paragraph (m) of this AD, do external eddy current inspections, or internal eddy current and detailed inspections, for cracks at stringer S-4R, from BS 908 to BS 1016, in accordance with Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014. Repeat the inspection(s) thereafter at the applicable intervals

specified in Table 5 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014. Either inspection option may be used at any repetitive inspection cycle.

(k) General Visual Inspection for Open Pockets at Stringer S-4R, BS 908 to BS 1016

For airplanes identified as Group 1, 4, and 6 in Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014: At the applicable time specified in Table 6 of paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014, except as required by paragraph (m) of this AD, do a general visual inspection for open pockets of the lower skin panel at stringer S-4R, from BS 908 to BS 1016, in accordance with Part 5 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014. If any open pocket is found, before further flight, inspect and repair using a method approved in accordance with the procedures specified in paragraph (o) of this AD.

(l) Corrective Action

If any crack is found during any inspection required by this AD: Before further flight, repair using a method approved in accordance with the procedures specified in paragraph (o) of this AD. Accomplishment of repairs approved in accordance with the procedures specified in paragraph (o) of this AD terminates the repetitive inspections specified in paragraphs (g) and (j) of this AD in the repaired areas only.

(m) Service Information Exception

Where Boeing Alert Service Bulletin 737-53A1319, Revision 2, dated April 4, 2014, specifies a compliance time "after the Revision 2 date of this service bulletin," this AD requires compliance within the specified compliance time after the effective date of this AD.

(n) Credit for Previous Actions

This paragraph provides credit for actions required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 737-53A1319, dated April 4, 2011; or Boeing Alert Service Bulletin 737-53A1319, Revision 1, dated April 8, 2011. Boeing Alert Service Bulletin 737-53A1319, dated April 4, 2011, is incorporated by reference in AD 2011-08-51, Amendment 39-16701 (76 FR 28632, May 18, 2011). Boeing Alert Service Bulletin 737-53A1319, Revision 1, dated April 8, is not incorporated by reference in this AD.

(o) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in paragraph (p)(1) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) AMOCs approved for AD 2011-08-51, Amendment 39-16701 (76 FR 28632, May 18, 2011), are approved as AMOCs for the corresponding provisions of paragraphs (g) and (l) of this AD.

(p) Related Information

(1) For more information about this AD, contact Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6447; fax: 425-917-6590; email: wayne.lockett@faa.gov.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on November 5, 2014.

Jeffrey E. Duven,
Manager,
Transport Airplane Directorate,
Aircraft Certification Service.

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